

CLAIMS

264/29.1, 29.6

1. A method for producing shaped, activated charcoal with the following steps:

- grinding one or more carbon-bearing materials;
- homogenously mixing the milled carbon-bearing material with a water-containing binding agent or a mixture of several binding agents, of which at least one contains water;
- shaping the mixture consisting of carbon-bearing material and binding agent into molded articles;
- drying the molded articles before carbonization to set the grain structure to up to an overall water weight of  $\leq 3$  %by wt.;
- carbonizing the molded articles, and
- activating the molded articles by means of an activation gas.

2. The method according to claim 1, characterized in that drying takes place in a fixed bed and/or in a belt dryer.

3. The method according to claim 1 or 2, characterized in that, when drying the molded articles, a heated and, if necessary, oxygen-reduced or oxygen-free gas stream is passed over the molded articles.

4. The method according to one or more of claims 1 to 3, characterized in that the molded articles are dried to an overall water content of  $\leq 1$  %by wt..

5. The method according to one or more of claims 1 to 4, characterized in that the molded articles are dried at temperatures of 40 to 170 °C, in particular 60 to 150 °C.

6. The method according to one or more of claims 1 to 5, characterized in that the molded articles are dried at below their self-ignition temperature.

7. The method according to one or more of claims 1 to 6, characterized in that the molded articles are dried within 0.2 to 12 hours, in particular within 0.5 to 6 hours.

8. The method according to one or more of claims 1 to 7, characterized in that the carbon-bearing material is wood charcoal, wood charcoal from old timber, peat coal, fruit pits, nut shells, coal coke and/or lignitic coke.

9. The method according to one or more of claims 1 to 7, characterized in that the carbon-bearing material used is carbonized via natural and/or synthetic thermal treatment of one or more carbon-bearing vegetable products.

10. The method according to claim 9, characterized in that the carbon-bearing material is wood charcoal and/or wood charcoal from old timber, in particular beechwood charcoal.

11. The method according to one or more of claims 1 to 10, characterized in that one or more aggregates are added to the carbon-bearing material and/or the binding agent.
12. The method according to claim 11, characterized in that KOH solution,  $K_2CO_3$ , surfactant, stearate and/or carboxymethyl cellulose are added as the aggregate.
13. The method according to one or more of claims 1 to 12, characterized in that 100 %by wt. of the carbon-bearing material is milled to a grain size of  $< 60 \mu m$ .
14. The method according to claim 13, characterized in that at least 95 %by wt. of the carbon-bearing material is milled to a grain size of between 10 and  $45 \mu m$ .
15. The method according to one or more of claims 1 to 14, characterized in that the water-containing binding agent is a binding agent with 10 to 50 %by wt., in particular 15 to 25 %by wt., water.
16. The method according to one or more of claims 1 to 15, characterized in that molasses is used as the water-containing binding agent.
17. The method according to one or more of claims 1 to 16, characterized in that coal tar, wood charcoal tar, bitumen and/or an inorganic gel is used as any non-water-containing binding agent that might be present.

18. The method according to one or more of claims 1 to 17, characterized in that 10 to 60 %by wt. binding agent, in particular 25 to 40 %by wt., are used relative to the mixture consisting of carbon-bearing material and binding agent.

19. The method according to one or more of claims 1 to 18, characterized in that the steps of mixing and shaping are carried out in one or two separate apparatuses.

20. The method according to one or more of claims 1 to 19, characterized in that the dried molded articles are carbonized at temperatures of 400 to 750 °C, in particular at 500 to 650 °C.

21. The method according to one or more of claims 1 to 20, characterized in that the dried molded articles are carbonized in a three-zone torque tube.

22. The method according to one or more of claims 1 to 21, characterized in that the dried and carbonized molded articles are activated at temperatures of 700 to 1000 °C, in particular at 800 to 950 °C.

23. The method according to one or more of claims 1 to 22, characterized in that the dried and carbonized molded articles are activated with water vapor and/or carbon dioxide.

24. The method according to one or more of claims 1 to 23, characterized in that the carbon-bearing materials are homogeneously mixed before, during or after milling, and that

this mixture of solids is subsequently homogeneously mixed with the water-containing binding agent or the mixture of several binding agents, of which at least one contains water.

25. The method according to one or more of claims 1 to 24, characterized in that the binding agents, of which at least one contains water, are first homogeneously mixed with each other, and that this binding agent mixture is subsequently homogeneously mixed with the carbon-bearing material or the mixture of several carbon-bearing materials.

26. The method according to one or more of claims 1 to 25, characterized in that at least one already milled carbon-bearing material is used.

27. A shaped, activated charcoal produced with a method according to one or several of claims 1 to 26.